**Fermi Problems**

**How long do all Canadians spend playing video games in a month?**

*(Yana and Julian)*

**Math Skills:**

* Multiplication and division
* Survey, social skills
* Research skills
* Estimation skills
* Averaging, the concept of the average
* Geography, knowledge of socio-economic state of Canada
* Assumptions

***What’s the total time (in days) your entire class has spent chewing gum over a lifetime?****(Hailey and Michelle K)*

**Math Skills:**

* Collecting and recording data
* Taking mean value of data
* Convert units of time

***How many party sized pizzas would it take to cover the outside of the homes on your street?***

*(Kathryn and Eddie)***Math Skills:**

* Equations for areas of squares, rectangles, and triangles (measurement)
* Surface area (measurement)
* Tiling patterns (geometry and special sense)
* Exponents, multiplication, addition (number and sense and numeration)
* Classify polygons (geometry and spatial sense)
* Solving geometry problems (geometry and spatial sense)

***How many meters does a student travel within the school per year?***

*(Brad and Kay)*

**Math Skills**

* Decimals, fractions, multiplication, collection and recording data

***How many skateboards do you need to cover a skyscraper?***

*(Chris & Girthiga)*

**Math Skills**

* Solving geometry problems (grade 8)
* Surface area of a rectangular prism (grade 7)
* Surface area of a cylinder (grade 8)
* Surface area of a triangular prism (grade 8)
* Decimals (grade 7)

**How many kilometers does the entire student population of your school walk in one year during school hours?** (Doina & Vick)

**Math Skills**

* Measurement skills
* Distance scales
* Estimation
* Averaging
* Polling (data management)
* Calculation and logic (Number sense and numeration, critical thinking)
* Problem solving

**How many trees need to be cut down to provide paper for an entire school year?** (Christe & Nathan)

**Math Skills**

* Estimation
* Organizational skills for multi-step questions
* Basic Math skills (i.e. arithmetic, conversion, multiplication)

**How many cell phones would you need to put end to end to make a ‘ring’ around the world? Are there enough cell phones in the world to accomplish this task?** *(Mala Singh and Lisa Kosh)*

**Math Skills**

* Number sense and numeration: Scientific notation, BEDMAS
* Measurement: Circle and Circumference
* Geometry and spatial sense: cell phone size in relation to the world

**How many balloons would it take to fill a swimming pool?**

*(Greg Leverton and Liz Wunderlich****)***

**Math Skills**

* They need to know how to calculate volumes and areas
* They need to understand shapes, and how spheres stack, and fill a volume.
* They have to understand averages, particularly average volumes